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Evaluating Board Characteristics' Influence on the Readability of Annual Reports: Insights from the Egyptian Banking Sector

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Abstract: This study aims to examine the impact of board characteristics (BCs) on banks' annual reports readability (BARR). Further, it examines whether bank size (BS) moderates the association between BC and BARR. The study employs a sample of 208 bank-year observations from both listed and non-listed banks in the Egyptian stock exchange (EGX), utilizing data spanning from 2016 to 2023. The study employs a random-effect regression model to test the hypotheses and discuss the results. The results suggest that BARR has a significant association with board meetings, gender and cultural diversity. Furthermore, BS played a moderating role in determining the association between BCs and BARR, supporting the second hypothesis. The findings show that the BCs and disclosure quality differ for banks of varying sizes. The findings have practical implications for the Egyptian banking sector, highlighting that board structure is critical to transparency and maintaining public trust. Additionally, the results focus policymakers' attention on standardizing the contents and structure of banks' annual reports, with the aim of reducing managers' manipulation of disclosures and reducing the level of information asymmetry between stockholders, as suggested by the agency theory.

Keywords: annual reports readability; board characteristics; bank size; banking sector; emerging economy; Egypt

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1. Introduction

Banking performance and financial condition are typical indicators of an economy's financial health. Management is expected to provide annual reports that give a thorough examination of the organization's activities and financial status. Reading annual reports improves information quality and meets decision-makers' needs (Herenia et al. 2024; Jayasree and Shette 2021; Seifzadeh et al. 2021). As a crucial part of the annual report, accounting narratives are an emerging trend (Herenia et al. 2024). Financial statements should take into account both narrative and quantitative information, since they are equally important (El-Sayed et al. 2021; Metwally 2022; Metwally et al. 2021). Thus, clear communication between stakeholders and management depends heavily on readability (Hasan et al. 2020). The board of directors (BOD) is required to disseminate information about its financial and operational performance to interested parties like shareholders, investors, financial analysts, and government authorities to support their decisions (Dalwai et al. 2021; Jayasree and Shette 2021). However, based on the signaling theory, company narrative disclosures can signal a specific situation by concealing negative events that may affect their competitive position (Abdelazim et al. 2023).

In unstable economies, the corporate governance structure plays a critical role in decreasing capital costs, especially in emerging markets such as the Middle East. In comparison to companies operating in more stable cultural, economic, and social contexts, those operating in these environments frequently have weaker governance structures. Under the Companies Law Central Bank of Egypt (CBE) Law No. 194 of 2020 and the Corporate

Governance Code 2005, countries like Egypt strive toward creating a business environment that attracts foreign investment (Ebaid 2023; Mousa et al. 2023). They also work hard to harmonize with International Financial Reporting Standards (IFRS) by enhancing the transparency and quality of information through the mandatory disclosure of banks' annual reports. This regulation necessitates a thorough examination of the reports, which frequently include optional disclosures like social responsibilities (El-Diftar et al. 2017; Albitar et al. 2022). The length, linguistic intricacy, and style of these documents—which are linked to the attributes of the BOD and the significance of implementing the Corporate Governance Code (CGC) into practice—are given for managers and directors to decide.

According to management theory, low-profit companies may use complex language in their disclosures, causing information asymmetry due to low understandability by users (Ajina et al. 2016). To resolve these understandability and information asymmetry issues, regulators make changes to the governance and disclosure requirements to enhance the readability of financial reporting periodically. The Egyptian government keeps accounting and auditing standards up to date and improves financial reporting preparation and transparency, emphasizing the significance of disclosing both financial and non-financial information, including forward-looking data, to enhance transparency and foster relationships with stakeholders, both of which are essential for improving organizations' future performance (Abdelazim et al. 2023).

In response to international stock exchanges, the EGX made many structural changes. These changes included updating governance code and structures to enhance the role of audit committee supervision and to improve board responsibilities (Khlif and Samaha 2016). Despite multiple changes to the Egyptian governance code, previous studies have found weaknesses in board responsibilities, especially BOD characteristics, disclosure, and transparency (Ebrahim and Fattah 2015). Egypt's unique CG structure may affect narrative disclosures and readability. Thus, studying how BCs affect Egyptian BARR is intriguing.

There are requests for BODs to be more diverse all across the world (Ali et al. 2024). Thus, BOD characteristics (i.e., size, gender, education, and independence limitations) are found to have different effects on the readability of annual reports. Therefore, BOD characteristics, as one of the corporate governance mechanisms, can play a crucial role in the readability of the bank's annual reports. Based on the available theoretical literature, most prior studies have focused on the association between firm profitability and the readability of annual reports (Hasan et al. 2020; Rahman and Kabir 2023) and found that less profitable firms have longer and more complicated annual reports.

Additionally, Ertugrul et al. (2017), Lo et al. (2017), and Loughran and McDonald (2014) show that factors such as earnings management, financial reporting regulations, sustainability, disclosures, and ownership structure explain the variation in the readability of a company's annual reports. From a managerial power perspective, it has been argued (Andreou et al. 2017; Hasan et al. 2020) that annual reports with more accessible narrative disclosures reflect the company's actual performance. The employment of skilled managers who can handle the complex work environment may be a driving factor in this connection. Therefore, rather than placing the blame on the manager, it could be argued that businesses' selection of management teams is responsible for the decline in readability.

This study poses the following research questions: What characteristics of the Board of Directors (BOD) influence the readability of accounting disclosure in the annual reports of Egyptian banks within their legal framework? Does the bank size moderate the relationship between board characteristics and BRAA?

This study makes several contributions to the literature. First, this study builds on previous studies examining the readability of annual reports and narrative disclosure, which mostly focus on firms rather than banks (e.g., Adhariani and Du Toit 2020; Dalwai et al. 2021; Haris et al. 2019). Exploring such issues in the banking sector is crucial due to the fact that the financial sector, especially the banking sector, has institutional and regulatory differences compared to other sectors. The complexity of financial data, the necessity of extensive and compact disclosures, and the wide range of interested parties dealing with savings and loans play a main role in increasing the level of complexity of banks' annual reports; therefore, a balance between providing detailed information and clearly communicating it needs to be struck (Guay et al. 2016; Li et al. 2021; Hassan et al. 2023).

Second, this study explores the readability of annual reports in banks in Egypt as a developing country, where the issuance of annual reports is still mandatory only for listed banks and voluntary for others. The research utilizes Egyptian data for these reasons. The absence of strong corporate governance standards in Egypt (Ebaid 2023; Mousa et al. 2023) reduces transparency and accountability in Egyptian enterprises. This lets business managers choose the content reported and its format. Second, Egyptian enterprises are not required to submit annual financial statements (Ezat 2019). Egyptian enterprises' annual reports have no stipulated structure, enabling corporate managers to include information. Thus, Egyptian enterprises' voluntary disclosure processes and annual report readability may vary.

To the best of the researchers' knowledge, this is the first evidence of how several BOD characteristics affect the readability of annual reports in the Egyptian banking sector. Finally, this study extends prior studies that either examined the readability of annual reports or the performance relationship (e.g., Hasan et al. 2020; Rahman and Kabir 2023). However, this study examines how bank size can moderate the relationship between board characteristics (e.g., board size, independence of BOD, gender diversity, BOD meetings, and BOD culture diversity) and the readability of annual reports. To the best of the authors' knowledge, this is the first study to examine such a moderating effect.

This study adds substantial value to the literature on BOD characteristics based on the Egyptian corporate governance code by identifying numerous BOD features that influence the readability of annual reports generated using the Egyptian corporate governance framework. To the best of our knowledge, this study is one of the few that focuses on the characteristics of the BOD that influence the readability of accounting information in annual reports under the Egyptian bank's legal framework. As such, it examines a rapidly changing economic environment with significant uncertainty for corporate boards of directors, as well as a legal framework that has direct influences on stakeholder decisions.

The remaining content is presented as follows: The second section provides information about the readability of annual reports and corporate governance, and discusses previous studies on the development of hypotheses. The third section presents the research methodology, which includes sample selection and the collection of data, measurement of variables, and empirical models. The fourth section presents the results accompanied by a discussion. The fifth section provides conclusions, limitations, and recommendations for future research.

2. Contextual Ramifications

This study's theoretical framework is grounded in agency theory. From an agency standpoint, efficient governance involves supervising managers to safeguard shareholders by minimizing opportunistic actions and associated agency expenses, as well as diminishing conflicts of interest (Brown et al. 2011; Bruno and Claessens 2010). Egypt is a significant and growing market in the Middle East and North Africa (MENA) region. In 1991, Egypt transitioned from a centrally planned economy to a free-market system, making more progress than other emerging economies in the economic reform and investment climate to attract regional and foreign investors (Shahwan 2015). However, political events like the 2011 Arab Spring revolution negatively affected its corporate accounting practices. An important outcome of this economic change has been a revived focus on the extent and quality of corporate governance regulations in Egyptian companies (Shahwan and Habib 2020). Due to the lack of supervisory and regulatory authorities, disclosure practices varied from 2011 to 2013 (El-habashy 2019; Razek 2014). This may have affected corporate disclosure readability. Egyptian accounting measurements and disclosure requirements are more secretive, conservative, and opaque (Ebrahim and Fattah 2015). Thus, the reliability of annual reports and corporate transparency need to be improved in order to preserve financial market confidence and attract investors (Efunniyi et al. 2024; Hassaan et al. 2023).

The effectiveness of corporate governance mechanisms in the banking industry, particularly the characteristics of the board of directors (BOD), is crucial. Over the past two decades, Egypt's economic environment has undergone significant changes to globalize its capital market and attract foreign investment (Nasr and Ntim 2018). One of the most significant improvements has been the formulation of rules related to corporate governance. The corporate governance code, introduced in 2005, has been revised and amended in 2011 to reflect global and national changes; this code offers recommendations for optimal methods related to corporate governance. The code covers aspects such as board composition, shareholder entitlements, transparency, and information provision. In 2021, the Egyptian Stock Exchange's listing rules were set by the Financial Regulatory Authority (FRA), requiring 25% or two women on the board of directors within a year (El-Dyasty and Elamer 2020; Ramadan and Hassan 2022). As stated by Lending and Vähämaa (2017), the professional performance of a company's board of directors is influenced by factors such as their level of independence, the concentration of ownership, and accounting.

The Central Bank and Banking Sector Law, also known as Law No. 194 of 2020, governs corporate governance in Egypt. It mandates corporations to establish a board of directors to supervise management activities and ensure that strategic goals are achieved. Shareholder rights are crucial for effective corporate governance in Egypt, allowing shareholders to participate in general meetings, vote on significant resolutions, and obtain timely company information. Egypt is enhancing its corporate governance framework to attract investment and stimulate economic growth through transparency, accountability, and business performance. The enforcement of governance in Egypt remains insufficient, resulting in varying practices among organizations (El-Diftar et al. 2017; Albitar et al. 2022). The Egypt Code of Corporate Governance Guidelines and Standards is not legally binding, except for companies listed on the stock exchange and banks (Abdollahi and Rezaei 2020). As a result, mandatory disclosures are often treated as voluntary (El-Sayed Ebaid 2011). Corporate governance mechanisms in Egypt are still in their infancy, contributing to low levels of transparency and accountability within firms (Desoky and Mousa 2012; Ezat 2019). Although companies are not required by regulatory bodies to issue annual reports, they are expected to submit audited financial statements to the Egyptian Stock Exchange (Ezat 2019). There is also no standardized format for these reports, allowing corporate managers flexibility in shaping their content. This paper aims to explore whether significant differences exist in the voluntary disclosure practices and readability of annual reports across Egyptian institutions.

3. Literature Review and Hypotheses Development

3.1. Readability of Annual Reports and Board Characteristics

In theory, annual reports that make financial data readable and understandable are crucial in financial reporting. There are many theories explaining why it is hard to understand annual reports and why business managers obfuscate information. This study's theoretical framework is grounded in agency and signaling theory, mainly focused on the challenges associated with comprehending annual reports and the intention of corporate managers to make them unclear. Agency theory specifically examines the relationship between principals, who are the owners, and agents, who are the managers. Information messages, such as annual reports, play a crucial role in signaling theory by serving as a means of communication between management and external stakeholders. This is particularly important because of the separation between ownership and management (Jayasree and Shette 2021). Financial reporting primarily centers around annual reports, which facilitates the reading and interpretation of financial information.

No single theory explains how BCs affect the readability of annual reports. According to agency and signaling theories, the corporate governance structure affects the readability of board reports. An effective corporate governance system may prevent the manipulation of the annual report writing style and improve financial transparency, and managers may benefit financially from superior performance (Herenia et al. 2024; Xu et al. 2019). The agency theory states that managers use annual reports to manipulate the market by emphasizing positive information and hiding negative information. Annual reports' ambiguity might cause a mismatch between management and the public. Managers might modify annual reports' readability to hide losses and highlight successes (Abu Bakar and Ameer 2011). Based on the impression management theory (Jones et al. 2021), obfuscation is defined as the purposeful modification of the content of annual reports by management in order to manipulate users' impressions through different narrative disclosures tools. Herenia et al. (2024) indicated that easy-to-read yearly reports enhance credibility. Managers may also complicate communication to hide inadequate company performance. Signaling theory indicates that managers provide investors with narratives, according to Abu Bakar and Ameer (2011). High-performing management clarifies its annual reports, whereas low-performing management conceals negative facts with complicated statements (Bonsall and Miller 2017).

The existing empirical literature indicates that there are numerous aspects to consider. Prior research investigates the readability of English written texts and focuses on its association with various issues such as financial statement complexity (Guay et al. 2016; Mankayi et al. 2023); this is because it is indicated that complicated financial statements have a detrimental impact on the information environment as there is a direct correlation between the complexity of financial statements and the level of voluntary disclosure that follows, as managers may use voluntary disclosure as a strategy to reduce the adverse impact of intricate financial statements on the information environment. The other research stream focused on measuring the readability of corporate social responsibility (CSR) reports by investigating whether companies emphasize good CSR information by increasing the readability of their CSR reports (Bacha and Ajina 2020; Li et al. 2021; Lo et al. 2017; Wang et al. 2018). They indicated that businesses could provide more favorable CSR information in order to improve their reputations, as organizations exhibiting strong CSR practices tend to highlight their CSR accomplishments by disclosing them in clear terms. To limit readers' responses to the unfavorable CSR information given in annual reports, companies with a worse CSR performance are more likely to employ complex language or terms (Metwally et al. 2024).

The most significant methods used for assessing readability are those that have been highlighted in the literature. The readability of the board of directors' reports may be measured using the LIX formula (Ezat 2019). The Flesch Readability Ease Index (FREI), as proposed by Jang and Rho (2016), Jayasree and Shette (2021) and Moreno and Casasola (2016), is an alternative measure for readability used to evaluate texts and establish the readability of annual reports. In the same stream, Richards and Van Staden (2015) also integrate the Flesch index and the Fog index. The Fog Index is used by Ginesti et al. (2018) and Loughran and McDonald (2014) as a readability metric for documents. Velte (2018) utilizes the Fog Index to determine how readable business reports are (Efretuei and Hussainey 2023). The majority of prior research focused on looking at the relationship between the attributes of a board of directors and the readability of annual reports, with a focus on companies in developed countries like China and the United States (Guay et al. 2016; Wang et al. 2018), the United Kingdom (Stone and Lodhia 2019; Velte 2018), and France (Bacha and Ajina 2020). There have been a few studies on banks and other financial institutions, as well as a few on developing countries like Qatar (Hassan et al. 2023), Egypt (Ezat 2019), in which a sample of the Egyptian EGX 100 companies that were listed between 2013 and 2015 was used, and Indonesia (Adhariani and Du Toit 2020; Novianri et al. 2023). Nonetheless, Hassan et al. (2023) selected 390 bank-year data from banks that were listed on the Gulf Cooperation Council stock exchange between 2014 and 2019. Thus, this study fills gaps in prior studies by focusing on the readability of banks' annual reports in a developing country, Egypt.

H1: *There is a significant influence of BC on the BARR.*

3.1.1. Board Size and Readability of Annual Reports

A major governance aspect that affects performance, decision-making, supervision, and transparency is the size of the board (Nahum and Carmeli 2020; Pucheta-Martínez and Gallego-Álvarez 2020), as a big board may offer the company more variety and expertise while also performing high levels of monitoring and counteracting the CEO's governance. According to this reasoning, a large board signifies high-quality narrative disclosure and strong CG, which raises the readability level. According to Saha and Kabra (2022), an experienced board should oversee financial discretion and guarantee the validity of business managers' accounting decisions in order to improve the readability of annual reports. Focusing on the relationship between board size and disclosure quality (Abeysekera 2010; Correa-Garcia et al. 2020; Rahman and Kabir 2023), it was found that companies with a bigger board made wider voluntary disclosures, confirming the assertion that larger boards oversee operations more effectively, as stated by Agency Theory. A BOD that complies with CG has high-quality characteristics that are conducive to collective decision-making and proposes enhancements to management practices, thereby reducing an opportunism in businesses and resulting in more transparent financial disclosures (Herenia et al. 2024). Larger boards may have a more defined committee structure, such as audit and disclosure committees, which concentrate on specific aspects of governance, including financial reporting. These committees can offer specialized evaluations, ensuring that the report is both compliant with regulations and accessible to users (Chychyla et al. 2019; Mankayi et al. 2023).

While a large board of directors is expected to lead to a diversity of expertise on the board, resulting in a significant improvement in the financial stability of financial institutions, it is also argued that a larger board is less likely to be controlled by executives and will reduce conflicts between stakeholders (Adams and Ferreira 2022; Whiting and Birch 2016). However, a number of studies have indicated that larger boards may have difficulties with coordination, which might lead to inadequate oversight and conflicting decisions (Al-Daoud et al. 2016; Sobhan 2021). By examining the association between BOD size and disclosure, Mazumder and Hossain (2023) found that risk disclosures in Bangladeshi banks are not impacted by board size. Furthermore, the influence of board size on the readability of annual reports was not supported empirically, according to Ginesti et al. (2018) and Lending and Vähämaa (2017). In the Egyptian context, Ramadan and Hassan (2022) indicated that agency theory predictions regarding management ownership, frequent board meetings, and gender diversity on the board were confirmed when accounting-based performance indicators (ROA) were used; however, claims for institutional ownership, board size, and board independence were denied.

Based on the theoretical arguments and results of the previous studies discussed above, it is thought that the board size can affect BARR. Accordingly, the following hypothesis is developed:

H1a: *Board size has a significant influence on the BARR.*

3.1.2. Non-Executive Members and Readability of Annual Reports

The independence of board members is a vital element of effective corporate governance. Therefore, the advocates of agency theory argue that increasing the number of non-executive directors on the board is advantageous to protecting the interests of stakeholders (Fama and Jensen 1983; Forker 1992). To enhance the independence of the board of directors, many codes of CG recommend that the majority of board committees should be independent non-executive directors (Chairunesia and Bintara 2019).

The independence of the BOD has been regarded as a significant characteristic of its efficacy in earlier research (Correa-Garcia et al. 2020; Hemphill and Laurence 2014; Ongore et al. 2015). These studies indicated that Boards of Directors (BODs) that follow

Corporate Governance Codes (CGCs) possess exceptional characteristics that enable them to engage in collective decision-making and provide suggestions to enhance management practices. This helps to reduce the tendency for opportunistic evaluations of the company's performance and consequently leads to more transparent accounting disclosures because of an increase in board independence and directors' expertise (Chychyla et al. 2019; Hemphill and Laurence 2014). Increasing the number of non-executive directors will result in a higher degree of disclosure transparency (Armstrong et al. 2010; Goh et al. 2016).

Rahman and Kabir (2023) investigated whether board independence increases the reading of annual reports using a sample of 11,938 firm-year observations from 1997 to 2016. Their findings demonstrate that board independence reduces the readability of annual reports; this result is similar to most previous studies. This finding is consistent with the concept of management's avoidance of expensive board monitoring. In Egypt, the code mandates that the board consists of no more than three executive members, indicating that most of the board is comprised of non-executive members.

Based on the theoretical arguments and the results of previous studies discussed above, it is thought that the non- executive members of the board of directors can affect BARR. Accordingly, the following hypothesis is developed:

H1b: *Non-executive members have a significant influence on the BARR.*

3.1.3. Board Meetings and Readability of Annual Reports

Regular board meetings enhance the quality of company disclosure and ensure that stakeholders receive accurate information, hence preventing information asymmetry (Li and Li 2018; Michelon and Parbonetti 2012). Agency theory suggests that frequent board meetings can help resolve conflicts between management and shareholders by assessing management's performance, ensuring shareholder interests are met, and enforcing accountability, leading to more reliable and comprehensive disclosures (Fama and Jensen 1983; Jensen and Meckling 2019). Brick and Chidambaran (2010) suggested that the frequency of board meetings could be used as a measure of corporate governance evaluation. It was discovered that holding meetings on a consistent basis would lead to an increased exchange of information, which in turn would enhance the decision-making process. Regular meetings with managers offer greater opportunities to oversee and influence the reporting process, resulting in more concise and transparent reports.

According to several studies (Adams and Ferreira 2022; Jones et al. 2021), organizations with more frequent board meetings have annual reports with better readability ratings, increasing the disclosure quality and readability of annual reports. More regular board meetings enhance financial reporting and lessen earnings management in European businesses (Adams and Ferreira 2022). More board meetings enhance financial reporting and sustainability disclosures in Chinese firms, according to Liao et al. (2022). On the other hand, other studies have contended that holding more meetings does not ensure improved results, as an increased meeting frequency may result in less effective BOD members since the quality of participation, planning, and agenda are the only aspects of BOD meetings that matter and do not affect company disclosure (Kinateder et al. 2021; Zaman 2022). Based on the theoretical arguments and the results of previous studies discussed above, it is thought that board meetings with the board of directors can affect BARR. Accordingly, the following hypothesis is developed:

H1c: *There is a significant influence of BOD meetings on the BARR.*

3.1.4. Board Culture Diversity and Readability of Annual Reports

A culturally diverse board of directors promotes decision-making and communication by providing a variety of perspectives. Recent regulatory changes in both emerging and developed countries have facilitated the participation of foreign investors in domestic stock markets (Sun et al. 2023). The presence of foreign members on the board of directors would enhance the company's success by using their specialized knowledge and skills from their country of origin. Foreign enterprises may have distinct management skills that allow them to share more information (Bear et al. 2010; Ebrahim and Fattah 2015). According to Yilmaz et al. (2023), banks with multicultural members produce more complete and understandable annual reports.

Signaling theory indicates that firms have the potential to streamline the process of reading reports in order to effectively communicate their performance to shareholders. There are a limited number of studies that investigate the relationship between international board members and corporate governance. Kabara et al. (2023) found a significant correlation between foreign participants and transparency; however, Ebrahim and Fattah (2015) and Nederveen et al. (2013) did not observe the same relationship. There is a lack of research that investigates the impact of foreign board members on the readability of annual reports. From the perspective of the association between board diversity and financial reporting, Chairunesia and Bintara (2023) indicated that cultural diversity on boards improves annual report reading, as larger banks with more complex operations need precise reporting. Kumar et al. (2023) examined the readability of banking sustainability reports. They indicated that diversified boards produced simpler sustainability reports, and that culturally diverse boards comprehend global stakeholder needs better and improve financial and non-financial reporting. Adams and Ferreira (2022) found that culturally diverse boards provide clearer annual reports. Diverse perspectives help clarify financial information for a wider audience. Issa et al. (2024) conducted a study using a sample of 80 listed banks and 640 firm-year observations from the MENA region for the fiscal years 2011–2018. Based on the resource dependence theory, it was found that board diversity, specifically in terms of nationality, has a significant and positive effect on bank performance, having long-term benefits. Based on the theoretical arguments and the results of previous studies discussed above, it is thought that the cultural diversity of the board of directors could affect the readability of bank annual reports. Accordingly, the following hypothesis is developed:

H1d: *BOD culture diversity has a significant influence on the BARR.*

3.1.5. Gender Diversity on the Board and the Readability of Annual Reports

Gender diversity on the board of directors can be attributed to various governance theories, including agency, stakeholder, social identity, and resource-based theory, as they suggest that diverse female board members can improve management monitoring, communication, and decision-making by providing different perspectives and capacities, improving corporate communication and performance (Hossain and Nguyen 2023; Hindasah and Harsono 2021; Kumar et al. 2023; Sbai and Ed-Dafali 2023). Board gender diversity enhances company governance in numerous ways. Nguyen et al.'s (2020) study found that a diverse board enhances disclosure and transparency, enhancing the clarity and understanding of annual reports. Female managers place a high value on clarity and simplicity when it comes to business reporting and decision-making by enhancing the clarity and effectiveness of information (Adams and Ferreira 2022; Chairunesia and Bintara 2023; Gangi et al. 2023; Ginesti et al. 2018). However, on the other hand, it has been argued that increasing the gender diversity could lead to reduced collaboration among board members (Gordini and Rancati 2017; Nguyen et al. 2020). They indicated that this scenario may occur when women are appointed to the board of directors only because of societal pressure to meet gender quotas to comply with corporate governance standards.

The empirical studies found mixed results about the relationship between gender diversity and the readability of annual reports. Studies by Sun et al. (2023) found that companies with diverse boards tend to have lower fog index scores, indicating higher readability. This is attributed to the different strategies used by female managers, leading to clearer and more direct reports. Kumar et al. (2023) also found that organizations with a greater representation of women managers produce more easily understandable sustainability reports. This suggests that the inclusion of individuals of different genders improves the full standard of business reporting, including both financial and non-financial elements. Women's superior communication capabilities also contribute to clearer and easier-to-understand reports (Bear et al. 2010). On the other side, Nguyen et al. (2020) showed that in countries with rigorous (voluntary) laws pertaining to gender requirements, there is a negative correlation between board gender diversity and disclosure. Additionally, they assert that, depending on gender equality and empowerment, women's effects on accounting performance in emerging nations may be either good or detrimental. Based on the theoretical arguments and the results of previous studies discussed above, it is thought that gender diversity on the board of directors could affect the readability of banks' annual reports. Accordingly, the following hypothesis is developed:

H1e: *BOD gender diversity has a significant influence on the BARR.*

3.2. Th Moderating Role of BS in the Association Between BC and BARR

The size of the bank influences how well it financially operates. A larger BS is associated with more efficient operational procedures, which may improve bank performance and decrease risk (Utami and Rengganis 2024). The theory of economies of scale was used to develop the hypothesis of BS as a moderation between board features and annual report readability (Gul et al. 2011). This theory states that large organizations will be more effective and efficient if they create annual reports using advanced analysis tools, which can provide management in all parts of the organization with information for making the right decision, improve management accounting, and enable the BOD to have clear disclosure (Riza 2019; Utami and Rengganis 2024). As the firm size becomes more extensive and more diversified, the board size increases; therefore, more corporate assistance and counsel are needed from the BOD (Abbasi and Malik 2015). Furthermore, the difference between this research and several previous studies (Abisola 2022; Aladwan 2015; AlFadhli and AlAli 2021) lies in its assessment of the moderating impact of BS, while most studies consider the direct relation between firm size and performance; for example, Alharbi (2017) and Chowdhury and Rasid (2016) indicated that BS is positively correlated with performance, according to studies conducted by Islamic banks in the GCC on nearly all Islamic banks worldwide. In contrast, Heffernan and Fu (2010) have argued that larger banks may not necessarily perform better. Similarly, the results match those of Aladwan (2015), who revealed that the larger a bank is, the less profitable it is. Even though banks can only get so much cheaper as they grow, diversifying their products helps keep credit risks and returns to a minimum.

Furthermore, several studies examined the role of BS as a moderating variable between the risk and performance of Islamic banks. Hasan et al. (2020), and Utami and Rengganis (2024) reveal that BS does not reduce the negative impact of liquidity risk on financial performance. However, it mitigates the negative impact of financing and operational risks on financial performance. In examining how BS moderates the relation between Nigerian banks' deposits, loans and performance, Hassan et al. (2023) showed that the BS positively moderates the relationship between the deposit rate and performance, whereas BS negatively moderates the relationship between the loan-to-deposit ratio and performance. The primary objective of this study was to bridge the current research gap concerning the influence of BC on Egyptian BARR. Based on the above discussion, the following hypotheses are proposed:

H2: *BS moderates the association between BC and the BARR.*

H2a: *BS moderates the association between board size and the BARR.*

H2b: *BS moderates the association between non-executive members in BOD and the BARR.*

H2c: *BS moderates the association between board meetings and the BARR.*

H2d: *BS moderates the association between BOD culture diversity and the BARR.*

H2e: *BS moderates the relationship between BOD gender diversity and the BARR.*

4. Research Methodology

4.1. Population and Sample of the Study

This research focuses on examining the effects of several board characteristics, such as size, BOD meetings, gender diversity, and independence, on the readability of annual reports within the Egyptian banking sector. Theories of corporate governance, including resource dependence and agency theories, assert that the diversity and composition of the board directly influence the quality of corporate disclosure and transparency. Given the regulatory issues in Egypt, which are increasingly emphasizing the transparency of financial reporting for both compliance and stakeholder communication, it is crucial to choose Egypt as a focus. Egypt has adopted Basel III, requiring banks to maintain higher standards of transparency, risk management, and capital adequacy. Several studies on financial reporting have thoroughly verified the Fog Index, a measure commonly used for assessing readability. The prior governance literature has repeatedly recognized board characteristics as critical determinants of the quality of disclosure, leading to their selection. This methodology ensures the validity and reliability of the findings by utilizing statistical techniques like panel analysis to provide robust insights into the relationship between board composition and financial disclosure transparency.

The statistical population of the current paper is represented by all listed and unlisted banks in the Egyptian Stock Exchange between 2016 and 2023. The systematic removal method will be used in sampling. After applying the following conditions, the statistical sample of the research will be chosen according to the following bases or criteria: banks listed in the Egyptian Stock Exchange or the Central Bank of Egypt until the end of 2023; listed and unlisted banks must be active during the period of the research study; and the annual reports required are completely presented in English during the period of the research study. In the presence of these limitations, therefore, the final sample was obtained according to Table 1 at the end of 2023.

Table 1. The total number of banks in the statistical population determined by applying specific criteria to select the sample.

Initial Sample (Total Number of Banks in Egypt)	37
Elimination due to lack information	11
Final statistical population	26
Final observations	**208 observations**

4.2. Data Collection

The sample of this study includes the listed and non-listed banks in Egypt. The availability of annual reports in English language also had an impact, ultimately reducing the sample to 26 banks and 208 observations. Readability scores were obtained by applying the Gunning Fog Index software[1] to banks' annual reports, which were available from the bank's website, Mubasher, Reuters and Investing.com.[2]

4.3. Variables and Measurements

This section presents a discussion of the variables used in this study, including the dependent, independent, and control variables.

4.3.1. Dependent Variable: BARR

The board of directors' annual report functions as the main source of narrative disclosure in Egypt. In addition, BOD reports include disclosures regarding existing and anticipated developments for Egyptian enterprise banks. The following procedures were used to calculate the readability level of board reports for listed and non-listed banks: First, all reports were converted from PDF to Word format to ease the linguistic analysis process. Second, following Lo (2008), tables, figures, and graphs were removed from the text to be analyzed. Third, parts of the annual reports were selected in order to measure their readability. The parts that discussed the financial and overall performance of the bank in the selected years were selected and were mostly mentioned in the chairman's message; however, these parts were mentioned by some banks in other sections like the board of director's report, performance analysis, bank's overview, and economic indicators. The text was uploaded in English to the "Gunning Fog Index" website, which automatically calculates the components of the FOG formula. The readability of bank annual reports was determined using an index that has been validated by Ajina et al. (2016), Bonsall et al. (2017) and Seifzadeh et al. (2021). The Financial Reporting Readability Index, often known as FOG (FOGIND), is determined by two factors: sentence length (measured in words) and the use of complex terms (defined as the number of phrases with three or more syllables). Following prior literature, we measured the complexity of financial statements using the readability and length of the firm's 10-K filing (e.g., Li 2008). The index is derived using the following formula:

$$FOG\ Index = (Average\ number\ of\ Word\ per\ sentence + Percent\ of\ complex\ words) * 0.4$$

4.3.2. Independent and Control Variables

Based on previous studies, this study uses controls for bank-specific factors such as bank capital requirements and performance. The capital adequacy ratio (CAR) measures capital requirements. According to Mandagie (2021), banks have the potential to enhance their profitability by expanding their activities, provided that they have sufficient capital. By incorporating ROA as a control variable, the study's findings become more robust, as it eliminates the influence of financial performance differences among the sample banks. The BOD requires more corporate assistance and counsel as the firm size and diversity increase, as suggested by Harkati et al. (2020); Mazumder and Hossain (2023). According to (Abisola 2022; Aladwan 2015; AlFadhli and AlAli 2021), the natural logarithm of a bank's total assets serves as a moderating influence on its size. To examine whether variations in BCs affect the readability level, five BCs are used. These variables and their proxies are presented in Table 2.

Table 2. Independent and control variable definitions and their proxies.

Variable Abbreviation	Description	Measurement	Prior Studies
Independent variable: Board characteristics			
BOD_Size	Board size	Total number of directors on the board	Jallali and Zoghlami (2022) Mollah et al. (2017)
BOD_non-executive	Board non-executive members	Total Number of non-executive members on the board	Lepetit et al. (2023)
BOD_Gender Diversity	Board Gender Diversity	Total number of females in the board	Jabari and Muhamad (2021)
BOD_Culture Diversity	Board culture diversity	$\frac{\textit{Number of foreign members}}{\textit{Total board size}}$	Gangi et al. (2023); Nahar and Jahan (2021)
BOD_Meetings	Board meetings	Total number of board meetings	Bansal et al. (2023) Hossain and Nguyen (2023)
Moderating variable			
Bank_Size	Bank size	Natural logarithm of bank total asset	Nahar and Jahan (2021)

Table 2. *Cont.*

Variable Abbreviation	Description	Measurement	Prior Studies
Control variables			
ROA	Bank Performance	Net income after tax divided by total assets	Harkati et al. (2020); Mazumder and Hossain (2023)
Bank_Ownership	Bank Ownership	Dummy variable which "1" *for private banks*; "0" otherwise	Gatzert and Schubert (2022)
CAR	*Capital adequacy ratio*	$(Tier1\ capital + Tier2\ capital) / Risk\ Weighted\ Assets$	Jallali and Zoghlami (2022)

4.4. Empirical Model

Using panel data analysis, this study examines the relationship between bank board characteristics, the readability of annual reports, and the makeup of BS as a moderator. Upon utilizing the Levin–Lin–Chu test to check the stationarity, all variables were determined to be stationary with a 90% confidence level.

Differences or lags were unnecessary. The Hausman specification test was used to determine which model—the random effect model (REM) or the fixed effect model (FEM)—was best for panel regression. REM was the most appropriate model, according to the Hausman test results, which showed that the *p*-values for equations 1 and 2 were more than 5% (Zainodin and Yap 2013). To test H1a, H1b, H1c, H1d, and H1e banks' board characteristics, including board gender diversity (*BOD_Gender Diversity*), board size (*BOD_Size)*, board culture diversity (*BOD_Culture Diversity),* board non-executive members *(BOD_Non-Executive*), and board meetings (*BOD_Meetings)*, these were regressed on the readability of annual reports (*READ)* while controlling the banks' performance (*ROA*), *Bank _ownership*, banks' capital adequacy ratio *(CAR)*, and *Bank_size*.

The regression model was as follows:

$$\mathbf{READ_{it}} = \alpha + \beta_1(BOD\_Gender\ Diversity)_{it} + \beta_2(BOD\_Size)_{it} + \beta_3(BOD\_Culture\ Diversity)_{it} + \beta_4(BOD\_Non\text{-}Executive)_{it} + \beta_5(BOD\_Meetings)_{it} + \beta_6(ROA)_{it} + \beta_7(Bank\_Ownership)_{it} + \beta_8\,(\mathrm{CAR})_{it} + \beta_9\,(Bank\_Size)_{it} + \varepsilon_{it} \quad (1)$$

To test H2a, H2b, H2c, H2d and H2e, the moderating effects are the matrix of the interaction terms of BOD characteristics and BS, i.e., *BOD_Gender Diversity* Bank _Size*, *BOD_Size* Bank _Size*, *BOD_Culture Diversity* Bank_Size*, *BOD_Non-Executive* Bank _Size* and *BOD_Meetings * Bank _Size*, were regressed on the readability of annual reports (*READ)* while controlling the banks' performance (*ROA*), *Bank _ownership and* banks' capital adequacy ratio *(CAR)*. The regression model was as follows:

$$\mathbf{READ_{it}} = \alpha + \beta_1(BOD\_Gender\ Diversity)_{it} * (Bank\_Size)_{it} + \beta_2(BOD\_Size)_{it} * (Bank\_Size)_{it} + \beta_3(BOD\_Culture\ Diversity)_{it} * (Bank\ \_Size)_{it} + \beta_4(BOD\_Non\text{-}Executive)_{it} * (Bank\_Size)_{it} + \beta_5(BOD\_Meetings)_{it} * (Bank\_Size)_{it} + \beta_6(ROA)_{it} + \beta_7(Bank\_\ Ownership)_{it} + \beta_8(CAR)_{it} + \varepsilon_{it} \quad (2)$$

5. Results and Discussion

5.1. Descriptive Statistics

The descriptive data for 208 observations of listed and non-listed banks in Egypt are presented in Table 3. Table 3 shows that the mean readability of annual reports (READ) was 15.622, which suggests that the annual reports are moderately difficult to read. The lowest and highest ratings recorded are 7.642 and 31.989, indicating that the reading of banks' annual reports varies from difficult to simple. According to Seifzadeh et al. (2021), the FOG index and readability level are correlated as follows: a FOG value over 18 indicates the inadequate reading and complexity of the text; 14–18 indicates complex text; 12–14 indicates average text; 10–12 indicates acceptable language; and 8–10 indicates simple text. This may be ascribed to Egypt's insufficient corporate governance framework and the authority granted by banks to management in determining the informational content of annual reports. This finding aligns with the studies conducted by Hassan et al. (2023)

and Ezat (2019), which concluded that the level of transparency in disclosure in Egypt is somewhat low. Moreover, investors place greater reliance on financial analyst reports for decision-making rather than yearly reports. While Egyptian enterprises are not obligated by regulatory authorities to release annual reports, they are nonetheless required to submit audited financial statements to the Egyptian Stock Exchange (Ezat 2019). Moreover, there is no universally accepted structure for the information included in the annual reports of Egyptian companies. This provides corporate managers with the freedom to adapt the informational content of the annual reports. Accordingly, this study aims to investigate the potential existence of substantial differences in voluntary disclosure procedures and the readability of annual reports among Egyptian institutions.

Table 3. Descriptive Statistics.

Variable	Min	Max	Mean	Std. Deviation
READ	7.642	31.989	15.622	3.289
BOD_Gender Diversity	0	3	0.214	0.501
BOD_Size	6	20	9.654	2.034
BOD_Culture Diversity	0	0.667	0.098	0.157
BOD_Non-Executive	2	17	0.709	0.245
BOD_Meetings	2	21	7.585	3.239
ROA	−0.019	0.5576	0.291	0.997
Bank_Size	5.109	12.253	8.983	1.556
Bank_Ownership	0	1	0.832	0.375
CAR	0.078	0.317	0.183	0.050
Observations		208		

Note: This table presents the main descriptive statistics for the variables used in the study. All variables are defined in Table 2.

In terms of board characteristics, Table 3 shows that the mean ***BOD_Size*** is nine members, with a minimum of six and a maximum of 20 members. The mean *BOD_culture Diversity* for Egyptian banks is 9.8%. The maximum number of female members on the bank's board of directors was three, and the minimum was zero, indicating that women's participation in BOD meetings is still limited in Egyptian banks. This is consistent with findings from studies (Sbai and Ed-Dafali 2023; Abou-El-Sood 2021) that show having women on the board of directors of developing countries' banks reduces risk and improves financial performance. On BODs, the number of non-executives averages 0.709 and the maximum is 17 non-executive members. The boards meet roughly eight times a year. The ROA ranges from a minimum of −1.9% to a maximum of 29.1%, with an average of 29.1%. Given the impact of the COVID-19 pandemic, it is not surprising that a large percentage of the sampled banks experienced lower profitability and frequent losses over the sample period. Additionally, 8.98 is the mean *Bank_Size*, as determined by the natural logarithm of the bank's total assets. The average capital requirement ratio (*CAR*) for the bank is 18.3%, with minimum and maximum values of 7.8% and 31.7%, respectively. The low standard deviation of 0.05 indicates that there is limited variation in the CAR of banks when it comes to complying with Basel regulations.

5.2. Pearson's Correlation

Table 4 shows the Pearson correlation matrix among the variables of the study. As can be seen in Table 4, board gender diversity is weakly positively correlated with board size 0.179 at $p < 0.05$ and positively correlated with 0.234 board meetings at $p < 0.05$, respectively. However, its relationship with readability (READ) is not statistically significant. This is contrasts with some prior studies that establish a positive relationship between board gender diversity and disclosure quality (Gull et al. 2023; Saha and Kabra 2022). The board size, on the other hand, has a weak negative correlation with readability (−0.089, significant at $p < 0.05$). This justifies the argument that a larger board size could result in coordination issues that directly affect the quality of disclosure. However, this does not match the findings of Dalwai et al. (2023), who stated that board size is positively related to readability in Gulf countries. The frequency of *BOD_Meetings* is slightly positively corelated to readability (0.142, $p < 0.05$). This may be taken to support the view that organizations with more regular BOD meetings have annual reports with better readability and increase the quality of annual reports and sustainability disclosures (Adams and Ferreira 2022; Jones et al. 2021). Finally, there is a weak positive association between the BS and the readability of annual reports (0.212, $p < 0.05$). This confirms the fact that larger organizations have the capacity to invest in the quality of bank disclosures (Hassan et al. 2023; Riza 2019; Utami and Rengganis 2024). Other control variables, including ROA and CAR, did not demonstrate any noteworthy correlation with readability. According to prior studies (Haniffa and Cooke 2002), the correlation coefficients among the independent variables, as well as between the independent variables and the control variables, are all less than 0.7, indicating that these variables are not multicollinear. The variables show no collinearity and are independent of one another.

Table 4. Pearson's correlation matrix.

	BOD_Gender Diversity	*BOD_Size*	*BOD_Meetings*	**Non-Executive**	*BOD_Culture Diversity*	*READ*	*ROA*	*Bank_Size*	*Bank_Ownership*	*CAR*
BOD_Gender Diversity	1									
BOD_Size	0.179 *	1								
BOD_Meetings	0.234 *	0.065	1							
Non-Executive	−0.204	−0.089	−0.029	1						
BOD_Culture Diversity	−0.106	−0.010	0.196 *	−0.164	1					
READ	0.074	−0.089 *	0.142 *	−0.086	−0.337	1				
ROA	−0.055	0.097	−0.009	0.089	−0.051	0.022	1			
Bank_Size	−0.079	−0.057	−0.029	0.024	−0.150	0.212 *	−0.039	1		
Bank_Ownership	0.029	0.227 *	0.139 *	0.1085 *	0.201 *	−0.204	0.078	−0.171	1	
CAR	0.0254	0.046	0.204 *	0.177 *	0.042	−0.006	0.175 *	0.082	0.293 *	1

Notes: All variables are defined in Table 1. * $p < 0.05$.

5.3. Panel Data Analysis

5.3.1. Results for the Impact of BC on BARR

Table 5 presents the panel data analysis results from model (1), which examines the impact of various BCs on BARR. The results of the diagnostic Hausman test are in Table 5, which shows that the panel dataset is better fitted by a random effects regression model. The results provide insight into the relationship between BCs and BARR. Their overall fit, as demonstrated by the statistically significant probability > F = 0.000, has an adjusted R-squared of 0.2509, indicating that about 25.09% of the variability in readability can be explained by the variances in the board characteristics. The results show that the coefficient between the *readability of annual reports*, *BOD_Meetings,* and *BOD_Gender Diversity* is positive and significant ($p < 0.01$, $p < 0.05$), respectively. Thus, hypotheses H1c and H1e are accepted. This suggests that a large BOD and the presence of females in board rooms could lead to reduced collaboration among board members (Adams and Ferreira 2022; Gordini and Rancati 2017), resulting in more complicated reports.

Table 5. Random effect regression results (Model 1).

Variables	*Coef.*	*Std. Err.*	*z*	*p-Value*
Dependent variable: Readability (*READ*)				
BOD_Gender Diversity	0.1373 **	0.642	2.14	0.032
BOD_Size	0.139	0.133	1.05	0.295
BOD_Meetings	0.246 ***	0.088	2.78	0.005
BOD_Non-Executive	−0.570	1.271	−0.45	0.653
BOD_Culture Diversity	−5.229 **	2.635	−1.98	0.047
ROA	−0.140	0.199	−0.07	0.944
Bank_Size	−0.352 **	0.275	1.28	0.020
Bank_Ownership	−1.057	1.180	−0.90	0.370
CAR	0.723	4.526	0.16	0.873
Cons	10.329	3.300	3.13	0.002
Year	Yes			
Adjusted R^2	0.2509			
Prob > F	0.000			
Hausman	6.72 (0.7518)			
Observations	**208**			

Notes: All variables are defined in Table 1. Standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$.

Board culture diversity has a significant negative correlation (β = −5.229 at the 5% significance level) with READ. This result is in line with previous research that found that having people from different cultures on boards makes annual reports easier to read by making them simpler. This is because BOD members from different countries may suggest changes to the bank's disclosures that make complicated information easier to understand. These improvements have the potential to significantly enhance the readability of the reports (Adams and Ferreira 2022; Chairunesia and Bintara 2023; Issa et al. 2024). Thus, hypothesis H1d is accepted. However, the correlations of *BOD_Meetings and BOD_Non-Executive* with READ are insignificant, indicating that the number of board meetings and their independence have no impact on the readability of banks' annual reports in Egypt. Thus, hypotheses H1a and H1b are accepted.

At the 5% significance level, there is a significant and negative association between a bank's size and the readability of its annual reports. This result is consistent with prior research (Abbasi and Malik 2015; Utami and Rengganis 2024; Riza 2019), which showed how large organizations effectively prepare annual reports by relying on a variety of qualified board members and sophisticated analysis tools that can improve management accounting, provide clear disclosure, and support management in all parts of the organization with the information they need to make informed decisions. The variables ROA, bank ownership, and CAR did not show statistically significant relationships with readability. The empirical results validate the initial concept, suggesting an important relationship between board characteristics and the readability of annual reports. Specifically, board size, gender diversity, and cultural diversity significantly influenced readability, corroborating the argument that board composition plays a key role in influencing the quality of corporate disclosure. The implementation of corporate governance procedures in Egypt mitigates the information asymmetry between management and shareholders by fostering a more transparent presidential statement that attempts to address the interests of all stakeholders through the BOD.

5.3.2. The Moderating Role of BS Between BC and BARR

Table 6 shows the regression results of model (2), which examined the moderating effects of BS on the relationship between BCs and BARR. The adjusted R^2 of model (2), which includes a moderator variable, exhibited an increase from 25.09% to 31.9%. The observed improvement in the readability of annual reports implies that using BS as a moderator has a significant effect on the level of BARR. The results show a significant positive association between the interaction term of *BOD_Size* and BS (*BOD_Size* Bank_Size)* *and (BOD_Size* Gender diversity)* with the readability of banks' annual reports, which means that H2a is accepted. This result demonstrates that large boards of directors in large banks have a range of points of view, resulting in difficulties with coordination. This can lead to inadequate oversight and conflicting decisions, ultimately resulting in more complicated annual reports (Whiting and Birch 2016). In contrast to the resources-based theory, the findings indicate that the impact of gender diversity and board size on the complexity of banks' annual reports is significant. Specifically, the inclusion of women in the board of directors (BOD) of Egyptian banks is primarily driven by societal expectations to fulfill gender quotas and comply with corporate governance requirements.

Table 6. Random effect regression results (Model 2).

Variables	*Coef.*	*Std. Err.*	*Z*	*p-Value*
Dependent variable: Readability (*READ*)				
BOD_Size × Bank_Size	0.122 **	0.033	0.95	0.015
BOD_Non-Executive × Bank_Size	−0.570	0.871	−0.45	0.653
BOD_Meetings × Bank_Size	−0.137 ***	0.075	2.12	0.005
BOD_Culture Diversity × Bank_Size	−5.229 **	2.635	−1.98	0.002
BOD_Gender Diversity	0.1152 **	0.642	2.14	0.032
ROA	−0.140	0.199	−0.07	0.944
Bank_Ownership	−1.057	1.180	−0.90	0.370
CAR	0.623 **	4.526	0.16	0.023
Cons	16.329	1.286	2.23	0.000
Year	Yes			
Adjusted R^2	0.3190			
Prob > F	0.000			
Hausman	5.52 (0.6422)			
Observations	**208**			

Notes: All variables are defined in Table 1. Standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$.

The results show a significant negative association between both the interaction terms of (BOD_Meetings* Bank_Size) and (BOD_Culture Diversity* Bank_Size) and the readability of annual reports at the 1% level of significance. Accordingly, large organizations with more board meetings and a wider range of cultural experiences tend to generate more readable annual reports, particularly in complex organizations like banks. Agency theory supports this result, as more board meetings assist directors in fulfilling their duties and supervising management, thereby promoting the dissemination of more comprehensible information. This supports the H2c and H2d hypotheses.

Furthermore, the results suggest that the relationship between the percentage of non-executive directors and the size of the bank is not statistically significant. This finding is unexpected, given previous research suggesting that board independence can improve the quality of disclosure. For example, Chen and Jaggi (2000) suggested that the readability of the reports may be influenced by the specific context of the Egyptian banking industry or by other factors that are rather significant. Therefore, hypothesis H2b was not supported. The results show a significant positive association between the capital adequacy ratio (CAR) and readability of banks' annual reports at the 5% significance level. This result indicates that banks with higher capital adequacy ratios may engage in more sophisticated financial transactions, requiring more complex accounting and disclosures in their annual reports. For example, detailed information about the composition of capital, the tier structure, risk-weighted assets, and the use of capital instruments could add layers of complexity to the text. The necessity to comply with international financial reporting standards (such as Basel III or IFRS) and provide comprehensive disclosures regarding capital management strategies may contribute to a reduction in readability (Bonsall and Miller 2017; Li 2008).

5.4. Further Robustness Analysis

The robustness test is crucial for model reliability. Stepwise regression is used to overcome challenges in panel data analysis in accounting research, such as multicollinearity, causality, model specification, and endogeneity. This method adds or removes variables based on their significance, resulting in a parsimonious model explaining the maximum variance in readability with few predictors. This method is essential for overcoming panel data analysis challenges. The approach is in line with recent studies about corporate disclosure research, putting forward the idea of using numerous readability measures to increase the robustness of the findings. This is in line with previous literature, which suggested that using several measurements at a time increases the robustness. For instance, Lim et al. (2018) and Kong et al. (2020) used a similar approach.

The stepwise regression analysis will check the robustness of our main results by using a readability measure different from the FOG index, which we used in our primary analysis. This will help isolate the most influential factors that effectively impact the readability of Egyptian banks' annual reports, and increase the consistency of the results across these two different measures of readability. In this durability test, we used the **Flesch reading ease score** as a dependent variable, which has been prominently mentioned in the literature related to reading (Guay et al. 2016; Jones and Smith 2014). The readability score provides a direct measure of the difficulty of the text on a scale from 0 to 100, focusing on the complexity of words and sentences. On the contrary, the FOG index estimates the level of education required to understand a text, placing greater weight on the presence of complex words (Jones and Smith 2014). The results of the alternative measure and test of the relationship between BC and BARR are presented in Table 7. The overall model fit is statistically significant (F = 9.763, $p < 0.001$), with an adjusted R-squared of 29.70%.

Table 7. Results of robustness analysis using stepwise regression.

Variables	*Coef.*	*Std. Err.*	*t-Stat*
Dependent variable: Readability (Flesch reading ease score)			
BOD_Culture Diversity	7.928 ***	1.590	−4.987
BOD_Meetings	0.221 **	0.075	2.936
Bank_Size	0.349 *	0.155	2.247
BOD_Gender Diversity	−1.970 *	0.988	−1.995
Cons	12.992	1.706	7.614
Year		Yes	
Adjusted R^2		0.2970	
Prob > F		0.000	
Observations		208	

Notes: All variables are defined in Table 1. Standard errors are in parentheses, *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.10$.

The results shown in Table 7 are consistent with the results in Tables 5 and 6, indicating the role of several board characteristics in enhancing the readability of banks' annual report, and how this relation is demonstrated by BS. The strongest predictor of readability is the cultural diversity ratio, which has a significant positive relationship, β = 7.928, $p < 0.01$. Again, this supports our earlier finding that the more a board is composed of cultural diversity, the less readable their annual reports are. This relationship stands even more since it is very robust across different analysis approaches. This finding is consistent with the prior literature, as Nederveen et al. (2013) demonstrated that cultural diversity at the team level could lead to communication problems. It also contrasts with several studies that indicate the positive impacts of diversity upon the quality of disclosure, like that of Ujunwa et al. (2012). The negative relationship found in our context might be a reflection of certain challenges particular to the Egyptian banking sector, such as language barriers or different cultural norms about communication and openness. Furthermore, the findings demonstrated the significance of regular board meetings at the 5% significance level and the primary function of independent members in defending the rights of stakeholders by raising the standard of banks' disclosure. Similar to the findings in Table 5, the results in Table 6, which are based on a stepwise analysis, do not show a significant relationship between BOD non-executives, ROA, and CAR and the report's readability.

6. Conclusions Limitations, and Recommendations for Future Research

Corporate governance is essential for mitigating information asymmetry between management and shareholders by overseeing the legitimacy of management practices. Emerging countries, especially in the Middle East, experience inadequate corporate governance processes due to the adoption of legislative frameworks that are inappropriate to the distinctive characteristics of developing markets. Our study explains the BCs within the context of the Egyptian legal structure for corporate governance, which may influence the success or inefficiency of good CG and business and BARR practices. Further, it examines whether BS moderates the association between BCs and BARR. Most previous research (Adhariani and Du Toit 2020; Dalwai et al. 2021; Ezat 2019; Guay et al. 2016; Wang et al. 2018) has indicated that BCs affect non-financial corporate narrative disclosure. In Egypt, there is limited research on how board qualities affect annual report readability. Though primarily focusing on the impact of BCs on non-financial corporate narrative disclosure, earlier studies, such as (Adhariani and Du Toit 2020; Dalwai et al. 2021; Ezat 2019; Guay et al. 2016; Wang et al. 2018), primarily focused on a different context to our current study, which was based on the annual reports of Egyptian banks.

In banking, the board of directors oversees reports to shareholders and bank committees. As a result, this study addresses a gap in the literature by exploring the influence of several BCs on the BARR. The FOG index served as a proxy for readability. The Fog score of the annual reports of banks in Egypt was, on average, 15.62, suggesting poor readability and more complicated annual reports.

The findings indicate that BCs greatly impact corporate disclosure quality in the Egyptian banking industry. Since board size, gender, and cultural diversity affect readability, the first hypothesis is accepted. The results show that BCs influence corporate disclosure quality. In particular, board composition and cultural diversity drove annual report readability. The findings show that foreign bank board members' knowledge and skills improve annual reports and transparency. Based on signaling theory, these firms will increase report readability to signify a positive performance. This also highlights that board structure and makeup are crucial to transparency and stakeholder communication.

Furthermore, BS played a moderating role in determining the association between BCs and BARR, supporting the second hypothesis. The findings show that BCs and the disclosure quality differ for banks of varying sizes. Contrary to prior research, board diversity and meetings improved disclosure quality for readability. In the Egyptian banking system, larger banks' expertise and assets might overcome coordination problems to make disclosures more comprehensive and transparent.

This shows that a big board of directors at large banks is likely to have diverse expert viewpoints, making coordination challenging. This could lead to poor monitoring and competing judgments, which could complicate yearly reporting. Contrary to the resources-based approach, gender diversity and a large board increase banks' annual report complexity. This suggests that societal expectations to meet gender quotas and corporate governance requirements drive the inclusion of women in Egyptian banks' boards of directors (BODs), and that qualified women should be in decision-making positions. A robustness test with stepwise regression confirms our primary analysis using the Flesch reading ease score.

While this study contributes to the literature on narrative disclosure, various limitations at the same time provide avenues that can be further explored. The current research focused only on chosen board attributes; it would be desirable to assess these in wider dimensions. Further studies may consider other governance factors such as audit committee composition, the presence of a Chief Risk Officer, and CEO duality. Further, studies on how bank ownership structures and capital costs influence disclosure practices and their financial implications would further enhance our understanding of this phenomenon. This study explored the issue of BCs and readability with a focus on annual reports. BCs may impact readability in voluntary disclosures as well, such as Environmental, Social, and Governance reports. In addition, reversing the direction of the research hypothesis, namely readability impacts organizational performance and the cost of capital and the informativeness of stock price specifically, would yield a better comprehensive outlook in the context of corporate governance and greater market efficiency.

The generalizability of the present study is also limited because it focuses on Egyptian banks due to their unique cultural and regulatory environment. We extend this limitation by suggesting a comparative analysis between and amongst MENA countries and other global regions, with a particular emphasis on the interaction effect between narrative disclosure and board characteristics. These studies would have important implications for understanding how cultural and regulatory contexts influence disclosure practices. Although the use of several readability measures, such as the FOG index and Flesch reading ease score, made our findings stronger, such measures may not be complete surrogates for disclosure quality. Future studies might incorporate additional measures related to more sophisticated characteristics of the disclosure content, such as the analysis of tone or thematic content. Additional readability indices, such as Bog and the LIX index, would be able to provide a more detailed evaluation of disclosure comprehensibility.

This paper makes several important theoretical and empirical contributions to the corporate governance and banking disclosure literature. First, this study extends the application of agency theory and signaling theory in the unique setting of the Egyptian banking sector by showing how board characteristics interact differentially with disclosure quality in the emerging market compared with that in the developed market. It provides new empirical data on the moderating role of bank size in governance–disclosure relationships and contributes to the use of contingency theory in the corporate governance literature. This contribution is all the more important because this challenges the prevailing assumption of 'one-size-fits-all' mechanisms in corporate governance across different market contexts.

Our paper is one of the first holistic analyses to explore the effect of board characteristics on disclosure readability within the Egyptian banking sector and hence provides evidence that addresses traditional assumptions concerning the impact of board diversity in emerging markets. From the methodological perspective, this paper offers a robust framework for assessing the quality of disclosure using a set of various readability metrics that set new benchmarks with respect to readability standards in the banking sectors of emerging markets. This represents a very important methodological contribution, as it provides a replicable framework for future studies in similar contexts.

This study further explores how such cultural variables uniquely affect governance efficiency in the Middle Eastern banking contexts. In the process, our research offers an insight into the intricate dynamics of corporate governance in emerging economies through an assessment of the board composition and cultural diversity, and their impacts on the quality of disclosure. This contribution bears particular relevance for an appreciation of how governance mechanisms have to be fitted to local contexts while their transparency and accountability standards are kept up to international levels.

Additionally, using qualitative research methods such as interviews with board members and financial analysts would provide considerable information regarding the process by which BCs influence disclosure practices. This would be a mixed-methods approach to enhancing our understanding of the complex relationships between corporate governance structures and the quality of financial narratives. It therefore provides the foundational basis for empirical research in the realm of BCs and disclosure readability within the banking sector. At the same time, however, it does underline the requirement for wider investigations distinguished by a diverse scope. In view of these limitations and exploring the suggested avenues of future research, scholars can build upon this landscape by aiming to bring nuanced, holistic awareness to corporate governance, disclosure practices, and their implications for stakeholders in the financial sector.

7. Policy Implications

Our findings therefore carry critical implications for policy development and implementation in the Egyptian banking sector. While the present regulatory framework, which accommodates the Banking Law No. 194 of 2020, the Central Bank of Egypt Corporate Governance Guidelines, and the Egyptian Financial Regulatory Authority FRA disclosure requirements, provides a foundational framework from which governance practices can be realized, it needs considerable development. Our findings indicate that there is a need to formulate specific readability thresholds for annual reports, as present regulations are silent in this regard. This is the reason variations in the quality and nature of reports have been quite different from bank to bank.

We elicit various policy reforms from these findings. First, the Central Bank of Egypt should establish thresholds of readability for annual reports, perhaps including standardized readability scores such as the FOG index as part of compliance requirements. Second, the regulatory bodies need to extend their guidelines on board diversity beyond basic gender quotas to include expert diversity and requirements regarding international experience, especially for the larger banks, since our findings proved that such factors have a significantly positive effect on disclosure quality.

We also recommend reinforcing the mechanisms that ensure disclosure quality by taking a multi-tiered approach based on bank size. The larger banks, being systemically important and better resourced, should have more stringent requirements for disclosure and increased monitoring. In addition, policymakers may wish to consider introducing compulsory training programs for board members regarding best practices in communication and disclosure, especially in banks with a diverse composition, where our research suggests potential communication problems.

This implies that banking regulators need to revisit their requirements regarding the composition of banks' boards. Instead of uniform standards, regulations can then take on proportionality with regard to bank size and bank complexity. This may mean that the minimum board size, diversity quotas, and meeting frequencies have to vary according to the size and market relevance of bank assets. Second, policies should be drawn up to make sure that a gender diversity requirement results in actual inclusion and does not just fulfill the quota, including specific provisions for women's representation in key decision-making committees.

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Notes

[1] http://gunning-fog-index.com/ (accessed on 6 May 2024).

[2] https://english.mubasher.info/countries/eg, https://www.reuters.com, https://www.investing.com/markets/egypt (accessed on 4 January 2024).

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